Ordering number: EN2767A

Monolithic Linear IC



No.2767A

LA7295 Series

VTR Audio Signal Recording / Playback Processor

Features

- Single-chip ICs that provide various functions (including two tape head select switches, a power supply switch for the OSC bias circuit, and five equalizer select switches (LP, EP) required for VTR audio signal recording / playback
- High merit in space because of SIP package
- Minimum number of external parts required

LA7295	· · ·	V_{CC}=12V, PB "Hi"
LA7294	· · ·	V_{CC}=12V, PB "Hi", no EE muting function
LA7296	· · ·	V_{CC}=12V, PB "Lo"
LA7297	· · ·	V_{CC}=9V, PB "Hi"

Block Diagram

※ : The LA7294 has no EE MUTE function.

Package Dimensions 3117
(unit:mm)

SANYO:SIP 30Z

Maximum Ratings at Ta = 25°C

			LA7294/95/96	LA7297	unit
Maximum Supply Voltage	V_{CC} max		14	11	V
Allowable Power Dissipation	Pd max	Ta = 65°C	600	600	mW
Operating Temperature	Topr		−10 to +65	−10 to +65	°C
Storage Temperature	Tstg		−55 to +125	−55 to +125	°C

Operating Conditions at Ta = 25°C

		LA7294/95/96	LA7297	unit
Recommended Supply Voltage	V_{CC}	12.0	9.0	V
Operating Voltage Range	V_{CC} op	11.25 to 12.75	8.25 to 9.75	V

Operating Characteristics at Ta = 25°C, V_{CC} = 12V(9V), f = 1kHz, 0dBv:1.0Vrms

			min	typ	max	unit
Current Dissipation (EE)	I_{CCE}	Quiescent	11.0	15.0	20.0	mA
Current Dissipation (PB)	I_{CCP}	Quiescent	12.0	16.0	21.0	mA
Current Dissipation (REC)	I_{CCR}	Quiescent	9.0	13.0	18.0	mA
Overall Gain at PB Mode	VG_{PB}	EQ IN to LINE OUT, Vo = −5dBv	67.0	68.0	69.0	dB
[Equalizer Amp]						
Open-Loop Voltage Gain	VG_{OE}	Vo = −5dBv	67.0	72.0		dB
Equivalent Input Noise Voltage	V_{NIE}	Rg = 2.2kΩ, DIN audio filter		1.0	1.8	μVrms
Input Resistance	r_{ie}			130		kΩ
[Line Amp]						
Voltage Gain (PB Input)	VG_{LP}	Vo = −5dBv	32.0	33.0	34.0	dB
Voltage Gain (EE,REC Input)	VG_{LR}	Vo = −5dBv	32.0	33.0	34.0	dB
Total Harmonic Distortion	THD_L	Vo = −5dBv		0.15	0.40	%
Output Noise Voltage	V_{NOL}	DIN audio filter		−70.0	−64.0	dBv
Input Resistance (PB Input)	r_{i1}			30.0		kΩ
Input Resistance (EE,REC Input)	r_{i2}			30.0		kΩ
Maximum Output Voltage	V_{OML}	THD = 1%	1.5	2.2		Vrms
Output Voltage at ALC Mode	V_{OA}	V_{IN} = −35dBv	−6.5	−5.0	−3.5	dBv
ALC Effect	ALC	V_{IN} = −35 to −10dBv		1.0	3.0	dB
Total Harmonic Distortion at ALC Mode	THD_A	V_{IN} = −35dBv		0.2	0.6	%
[Recording Amp]						
Voltage Gain (Open Loop)	VG_{OR}	Vo = −5dBv	51.0	57.0		dB
Voltage Gain (Closed Loop)	VG_{CR}	Vo = −5dBv	13.5	14.5	15.5	dB
Total Harmonic Distortion	THD_R	Vo = −5dBv		0.1	0.3	%
Input Resistanc	r_{ir}			30.0		kΩ
Maximum Output Voltage	V_{OMR}	THD = 1%	1.5	2.2		Vrms
[Muting Circuit]						
ON-State Voltage	V_{MON}	Pin 12 DC	3.3		V_{CC}	V
OFF-State Voltage	V_{MOFF}	Pin 12 DC	0		1.0	V
Muting Attenuation (PB,EE)	M_P,M_E	LA7294 : No EE required	85.0	90.0		dB
Muting Attenuation (REC)	M_R		73.0	78.0		dB
[PB/EE Select Circuit]						
PB Mode Hold Voltage (LA7296 EE mode)	V_{PP}	Pin 10 DC	3.3		6.0	V
EE Mode Hold Voltage (LA7296 PB mode)	V_{PE}	Pin 10 DC	0		1.0	V
[REC/EE Select Circuit]						
REC Mode Hold Voltage	V_{RR}	Pin 2 DC	3.8		6.0	V
EE Mode Hold Voltage	V_{RE}	Pin 2 DC	0		1.0	V

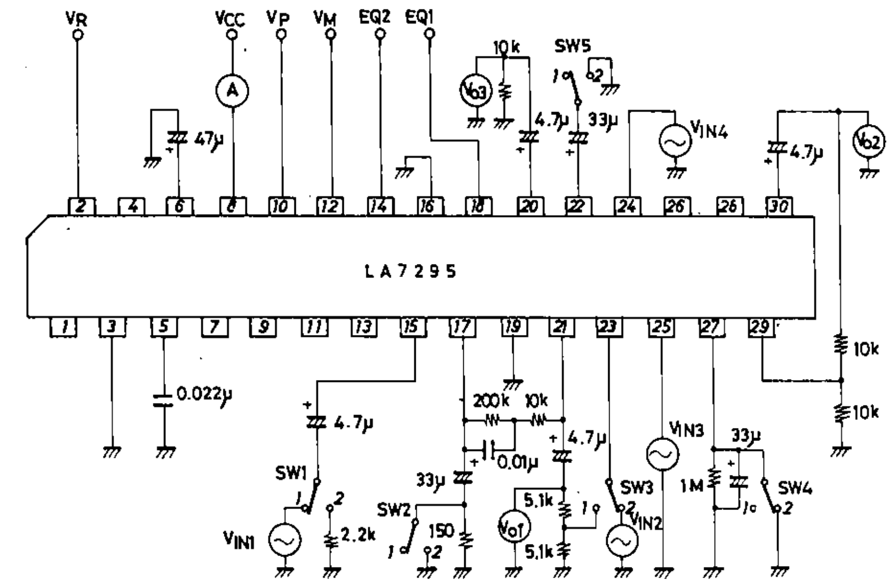
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			min	typ	max	unit
[Equalizer Select Circuit]						
Switch ON-State Voltage	V_{EON}	Pins 14,18 DC	3.0		6.0	V
Switch OFF-State Voltage	V_{EOFF}	Pins 14,18 DC	0		0.8	V
[Head Select Switch]						
Pin 4 ON-State Resistance	R_{ON4}	$I_4 = \pm 1mA$		10	20	Ω
Pin 9 ON-State Resistance	R_{ON9}	$I_9 = \pm 1mA$		5	10	Ω
Pin 4 Input Voltage	V_{IN4}	Ta = 65°C, f = 80kHz(sin) $I_{LK} = 10\mu A$			±40	V
[REC V_{CC} Switch]						
Pin 1 Output Voltage (LA7294/95/96)	V_{RO}	Pin 1 load current 100mA	10.5	10.8		V
Pin 1 Output Voltage (LA7297)	V_{RO}	Pin 1 load current 100mA	7.5	7.8		V

Test Circuit





Unit (resistance: Ω, capacitance: F)

(Switch Operating Table)

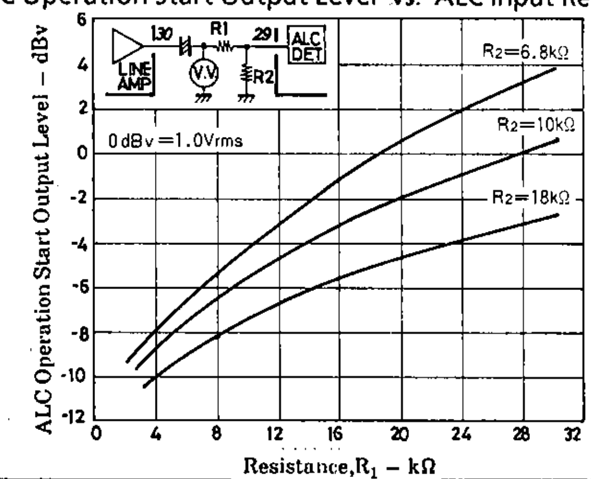
Item (Symbol)	SW1	SW2	SW3	SW4	SW5	V_M	V_P	V_R	Input	Test
I_{CCE}	2	1	1	2	1	GND	GND	GND		A
I_{CCP}	2	1	1	2	1	GND	5V	GND		A
I_{CCR}	2	1	1	2	1	GND	GND	5V		A
VG_{PB}	1	1	1	2	1	GND	5V	GND	V_{IN1}	Vo2
VG_{OE}	1	2	2	2	1	GND	5V	GND	V_{IN1}	Vo1
V_{NIE}	2	1	2	2	1	GND	5V	GND		Vo1
VG_{LP},THD_L,V_{OML}	2	1	2	2	1	GND	5V	GND	V_{IN2}	Vo2
VG_{LR}	2	1	1	2	1	GND	GND	GND	V_{IN3}	Vo2
V_{NOL}	2	1	2	2	1	GND	GND	GND		Vo2
V_{OA},ALC,THD_A	2	1	2	1	1	GND	GND	GND	V_{IN3}	Vo2
VG_{OR}	2	1	2	2	2	GND	GND	GND	V_{IN4}	Vo3
VG_{CR},THD_R,V_{OMR}	2	1	2	2	1	GND	GND	GND	V_{IN4}	Vo3
M_P	1	1	1	2	1	5V	5V	GND	V_{IN1}	Vo2
M_R	2	1	1	2	1	5V	GND	GND	V_{IN4}	Vo3
M_E	2	1	2	2	1	5V	GND	GND	V_{IN2}	Vo2

For the LA7294 that has no EE MUTE function, the ME test is not required.

ALC Output Level Setting

The ALC output level depends on the value of the resistor connected to the detector input (pin 29) as shown below.

ALC Operation Start Output Level vs. ALC Input Resistance



Sample Application Circuit

